**COURSE FILE**

**FOR**

**MVC through Scripting Languages**

**FOR III YEAR II SEMESTER B.TECH**

**(CSE)**

**2019-20**



**CVR COLLEGE OF ENGINEERING**

(Autonomous)

**Vastunagar, Mangalpalli(V), Ibrahimpatan (M),**

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**MVC THROUGH SCRIPTING LANGUAGES**

(Professional Elective- I)

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Instruction | : | 3 Periods / week |  |  | Sessional Marks |  | : |  | 30 |
| Tutorial | : | 1 Period / week |  |  | End Examination Marks |  | : |  | 70 |
| Credits | : | 3 |  |  | End Exam Duration |  | : |  | 3 Hours |
|  |  |  |  |  |  |  |  |  |  |
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**Course Objectives:**

1. The course demonstrates an in depth understanding of the languages PHP and Python.
2. To understand the syntax of Python and learn the language basics such as

Strings, Numbers, Variables, Lists, Dictionaries, Functions, Decisions and Arrays.

1. To learn advanced Python programming features to develop the GUI applications, accessing databases.
2. Learn advanced framework for creation of interactive web applications anddata driven apps.
3. To develop interactive User Interfaces using ReactJS.

**UNIT I: PHP Basics  
PHP Basics:** Features; Embedding PHP Code in your Web pages; Outputting the data to the browser; Data types, Variables, Constants, expressions; string interpolation; control structures; Function, Creating a Function, Function Libraries; Arrays; strings and Regular Expressions.

PHP and Web Forms; Files; PHP Authentication and Methodologies -Hard Coded, File Based, Database Based, IP Based; Login Administration; Uploading Files with PHP; Overview of PHP Framework (Laravel)

**UNIT II: Python -- Introduction**Basic syntactical structures; Identifiers and keywords;

**Basic data types** – integers, booleans, float, complex, Decimal, other standard library types; String type; String formatting; built-in functions; simple programs;

**Sequence types** – Lists, Tuples, Named tuples; Set types -- Sets, Frozen sets; **Mapping types** – Dictionaries, Default dictionaries; Iterating collections; Copying collections;

Comprehensions; Generators;

**UNIT III: Python Programming Structures**

**Control structures** – Conditional branching, Looping; Exception handling;

**Functions** – types of functions, scopes, global and nonlocal statements, argument passing techniques, argument and parameter unpacking;

Assertions; Recursion; Standard Library modules; Custom modules and packages;

**File handling** -- Reading and writing binary and text data; command-line arguments; Structured text files – CSV, XML, HTML, JSON;

**UNIT IV:Python Object-oriented Programming and Web development**

**OOP**: Custom classes; Inheritance and Polymorphism; Properties; Custom collection classes; Decorators; Context managers; Meta-classes;

**The Django web framework:** usage and an example, Web application development; Other frameworks – flask, bottle;

**Unit V:ReactJS**

**Review of Node JS and Angular JS.**

# Introduction to ReactJS: History of front end libraries, Motivation for using React, Key differentiators (Virtual DOM, One way binding)

# React Components: React component, Render function, Component API, Component lifecycle, State, Props, Mixins, JSX, Build a simple React component

# Component inter communication: Component composition, Pass data from parent to child,  pass data from child to parent, Fetching data from API using axios, Form Validations, Posting Data, React Router, Building & Deploying React App.

**Course Outcomes:** At the end of the course, the student should be able to

CO 1: Write basic PHP scripts using functions, arrays and strings

CO 2: Write Python programs using Strings, Lists, Dictionaries, Files and other

structures.

CO 3: Work with objects and define custom classes.

CO 4: Understand the frameworks for building cross-platform web applications

which are interactive and feature rich.

CO 5: Use ReactJS to build user interfaces.

**TEXT BOOKS:**

1. Think Python, Second Edition, Allen B Downey, 2016, O’Reilly
2. Beginning PHP and MySQL, Third Edition, W Jason Gilmore, Apress Publications.
3. Learning React Functional Web Development with React and Redux, Alex Banks and Eve Porcello, O’Reilly Media, Inc. 2017.

**REFERENCE BOOKS:**

1. Open Source Web Development with LAMP usingLinux,Apache,MySQL,Perl and PHP,J.Lee and B.Ware(Addison Wesley) Pearson Education.
2. Guide to Programming with Python, M Dawson, Cengage Learning.

# Introduction to React, Cory Gackenheimer, Apress, 2015.

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| **Sl. No** | **Name of the Topic** | | | | **No. of**  **Classes**  **required** | | | **Cumulative**  **number of**  **periods** | | |
| **UNIT – I :PHP BASICS** | | | | | | | | | | |
| 1 | | | PHP Basics:Features | | | 1 | | | | 1 |
| 2 | | | Embedding PHP Code in web pages | | | 1 | | | | 2 |
| 3 | | | Data types,Variables,Constants,Expressions | | | 1 | | | | 3 |
| 4 | | | String Interpolation | | | 1 | | | | 4 |
| 5 | | | Control Structures | | | 1 | | | | 5 |
| 6 | | | Functions | | | 1 | | | | 6 |
| 7 | | | Arrays | | | 1 | | | | 7 |
| 8 | | | Strings and Regular Expressions | | | 1 | | | | 8 |
| 9 | | | PHP Authentication | | | 2 | | | | 10 |
| 10 | | | PHP Methodologies -Hard Coded, File Based, Database Based, IP Based; | | | 2 | | | | 12 |
| 11 | | | Login Administration; Uploading Files with PHP; Overview of PHP Framework (Laravel) | | | 2 | | | | 14 |
| **UNIT – II: Python -- Introduction** | | | | | | | | | | |
| 12 | | Syntax | | | | 1 | | | | 15 | |
| 13 | | Data types:Integers,Booleans,float,complex,Decimal | | | | 1 | | | | 16 | |
| 14 | | Other Standard library types | | | | 1 | | | | 17 | |
| 15 | | String type,String formatting, built in functions,simple programs | | | | 1 | | | | 18 | |
| 16 | | Lists, Tuples, Named tuples; Set types -- Sets, Frozen sets | | | | 2 | | | | 20 | |
| 17 | | Dictionaries, Default dictionaries | | | | 1 | | | | 21 | |
| 18 | | Iterating collections,Copying collections; | | | | 1 | | | | 22 | |
| 19 | | Comprehensions, Generators | | | | 2 | | | | 24 | |
| **UNIT-III: Python Programming Structures** | | | | | | | | | | | |
| 20 | | | Control structures:Conditional branching,Looping | | | 1 | | | | 25 | |
| 21 | | | Exception Handling | | | 1 | | | | 26 | |
| 22 | | | Functions:types of functions | | | 1 | | | | 27 | |
| 23 | | | Global and non-local statements | | | 1 | | | | 28 | |
| 24 | | | Argument passing techniques | | | 1 | | | | 29 | |
| 25 | | | Argument and parameter unpacking | | | 1 | | | | 30 | |
| 26 | | | Assertions | | | 1 | | | | 31 | |
| 27 | | | Recursion | | | 1 | | | | 32 | |
| 28 | | | Standard Library modules,Custom modules | | | 1 | | | | 33 | |
| 29 | | | Packages | | | 1 | | | | 34 | |
| 30 | | | File Hadling:Reading and writing binary and text data | | | 1 | | | | 35 | |
| 31 | | | Command line arguments | | | 1 | | | | 36 | |
| 32 | | | Structured Text files-CSV,XML,HTML,JSON | | | 1 | | | | 37 | |
| **UNIT IV:Python Object-oriented Programming and Web development** | | | | | | | | | | | | |
| 33 | | | OOP:Custom classes | | | 1 | | | | 38 | |
| 34 | | | Inheritance and Polymorphism | | | 2 | | | | 40 | |
| 35 | | | | Custom collection classes | | | 1 | | 41 | | | |
| 36 | | | Decorators | | | 1 | | | | 42 | |
| 37 | | | Context managers, Meta Classes | | | 1 | | | | 43 | |
| 38 | | | **The Django web framework**: usage and an example | | | 2 | | | | 45 | |
| 39 | | | Web application development | | | 2 | | | | 47 | |
| 40 | | | Other frameworks – flask, bottle | | | 1 | | | | 48 | |
| **UNIT-5:React JS** | | | | | | | | | | | | |
| 41 | | | **Review of Node JS and Angular JS.** | | | 2 | | | | 50 | |
| 42 | | | Introduction to ReactJS: History of front end libraries, | | | 1 | | | | 51 | |
| 43 | | | Motivation for using React, | | | 1 | | | | 52 | |
| 44 | | | Key differentiators (Virtual DOM, One way binding) | | | 1 | | | | 53 | |
| 45 | | | React component, Render function, Component API, | | | 1 | | | | 54 | |
| 46 | | | Component lifecycle, State, Props, Mixins, JSX, | | | 1 | | | | 55 | |
| 47 | | | Build a simple React component | | | 1 | | | | 56 | |
| 48 | | | Component inter communication: Component composition | | | 1 | | | | 57 | |
| 49 | | | Pass data from parent to child,  pass data from child to parent | | | 1 | | | | 58 | |
| 50 | | | Fetching data from API using axios, Form Validations, Posting Data, React Router | | | 2 | | | | 60 | |
| 51 | | | Building & Deploying React App. | | | 1 | | | | 61 | |

**UNIT – I**

**Essay Questions**

1. How to embed PHP script in web page
2. Explain about different methodologies and authentication of PHP?
3. Explain Functions.
4. Explain arrays in PHP.
5. Briefly explain Uploading Files with PHP, Sending Email using PHP.

**Short Answer Questions**

1. What are data types in PHP
2. Give Overview of PHP Framework.
3. How to create a Function in PHP.
4. Discuss Constants,Expressions.
5. Discuss Control structures.

**UNIT – II**

**Essay Questions**

1. Explain the various numeric data types supported in Python.
2. Explain the various iteration statements with examples.
3. Describe the methods supported by str data type.
4. Write a program to input a string and count the number of vowels and whitespace characters.
5. Describe the identifier naming rules.
6. Describe the Python execution model.
7. Discuss in detail with examples about the int and float data types.
8. Describe the various built-in functions of Python.
9. Explain the various ways of creating lists.
10. What is the significance of a dictionary? Explain the various methods of a dictionary object.
11. With suitable examples, illustrate the usage of tuples.
12. Explain the sequence and mapping unpacking operators with examples
13. Explain the significance of sets and frozen sets

**Short Answer Questions**

1. Describe the syntax of slice operator.
2. Discuss the different ways of creating a string literal.
3. Explain the two different division operators, with examples.
4. What is the significance of sequences?
5. Differentiate mutability and immutability.
6. Discuss various integer conversion functions.
7. Write about the Boolean data type and its literals.
8. Write about the complex data type.
9. Discuss the logical operators of Python.
10. With an example illustrate the usage of membership operators.

**UNIT – III**

**Essay Questions**

1. Explain the concept of modules and packages. Give examples.
2. Explain the concept of functions and the various ways in which these can be created.
3. With suitable examples explain about global and local variables.
4. Explain the concept of scope. Provide complete examples for illustration.
5. Explain the concept of recursion with adequate examples.

**Short Answer Questions**

1. What are functions?
2. What is recursion?
3. What is a local variable?
4. How to use the global and nonlocal keywords inside a function.
5. What is a module?
6. Write about open function and its syntax.
7. What is a mutable object?
8. Write about the append() and extend() list methods.
9. What is an iterable object?
10. Why do we need a collection object?

**UNIT – IV**

**Essay Questions**

1. With an example, explain how to create a custom class.
2. Explain the concept of inheritance.
3. Discuss about special methods and their significance.
4. With examples, discuss the concept of generators.
5. Write in detail about function and method decorators.
6. What is the significance of function annotations? Give examples.
7. Write about multiple inheritance.
8. With examples explain the branching statement in Python.
9. Explain Decorators with example.
10. Illustrate the concept context managers with examples.
11. What are the features and key concepts of Django framework?
12. Write a Python program, to create a small web application with a single form.
13. Discuss the relevance of frameworks in development.

**Short Answer Questions**

1. What is a metaclass?
2. Define polymorphism.
3. Define inheritance.
4. Define the concept of property.
5. What is a special method?
6. What is a method?
7. Define aggregation.
8. What is an annotation?
9. What is a decorator?
10. What is a generator method?
11. Define web application framework

**UNIT – V**

**Essay Questions**

1. Discuss the AngularJS expressions, and directives.
2. **What do you understand by Virtual DOM? Explain its working.**
3. **How can you embed two or more components into one?**
4. **Explain the lifecycle methods of React components in detail.**
5. Explain Component Inter Communication

**Short Answer Questions**

1. What is Node.js?
2. **Differentiate between Real DOM and Virtual DOM**
3. **What are the features of React?**
4. **What is React JS?**
5. **List some of the major advantages of React.**
6. **What are the limitations of React?**
7. **How is React different from Angular?**
8. **What do you understand from “In React, everything is a component.”**
9. **What is JSX?**
10. **What is Props?**
11. **What is a state in React and how is it used?**
12. **Differentiate between states and props.**
13. **How can you update the state of a component?**
14. **Why do we need a Router in React?**
15. **List down the advantages of React Router.**



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**B.Tech**. **III**Year **II** Sem.– **I MID** Examinations, [Model paper ]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Subject**: MVC through Scripting Languages** | | |
|  |  |  | |  |
|  | Date: | Time: 2 Hours | | Max. Marks: 40 |
|  |  |  | **PART - A** |  |

**Answer All Questions 5\*2 = 10 Marks**

1. Give Overview of PHP Framework. CO1
2. Describe the syntax of slice operator. CO2
3. Discuss Constants, Expressions. CO2
4. Write about the Boolean data type and its literals. CO2
5. What is Exception handling? CO 3

**PART – B**

**Answer all three questions 10\*3 = 30 Marks**

1. Explain Functions in PHP. CO1

OR

1. Briefly explain Uploading Files with PHP, Sending Email using PHP. CO1
2. What is the significance of a dictionary? Explain the various methods of a dictionary object . CO2

OR

1. Explain the sequence and mapping unpacking operators with examples CO2
2. Explain the concept of modules and packages. Give examples. CO3

OR

1. Explain the concept of functions and the various ways in which these can be created.

CO3

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**B.Tech**. **III**Year **II** Sem.– **II MID** Examinations, [Model paper ]

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Subject**: MVC through Scripting Languages** | |
|  |  |  |  |
|  | Date: | Time: 2 Hours | Max. Marks: 40 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  | **PART - A** |  |

**Answer All Questions 5\*2 = 10 Marks**

1. Write about open function and its syntax. CO3
2. Define inheritance. CO3
3. **What is React JS? CO5**
4. What is a decorator? CO4
5. **What is JSX? CO5**

**PART – B**

**Answer all three questions 10\*3 = 30 Marks**

1. Explain the concept of recursion with adequate examples. CO3

OR

1. Explain the concept of scope. Provide complete examples for illustration. CO3
2. Illustrate the concept of context managers with examples. CO4

OR

1. Write a Python program, to create a small web application with a single form.CO4
2. **What do you understand by Virtual DOM? Explain its working. CO5**

OR

1. **Explain the lifecycle methods of React components in detail. CO5**

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**B.Tech**. **III** YearI **I** Sem.– **Main** Examinations, [Model paper ]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Subject**: MVC through Scripting Languages** | | |
|  |  |  | |  |
|  | Date: | Time: 2 Hours | | Max. Marks: 70 |
|  |  |  | **PART - A** |  |

**Answer All Questions 5\*2 = 10 Marks**

1. What are data types in PHP? CO1
2. Give Overview of PHP Framework. CO1
3. Differentiate mutability and immutability. CO1
4. Discuss various integer conversion functions. CO2
5. How to use the global and nonlocal keywords inside a function. CO2
6. What is a module? CO3
7. Define inheritance. CO4
8. Define the concept of property. CO4
9. **What is React JS? CO5**
10. **List some of the major advantages of React JS. CO5**

**PART – B**

**Answer all three questions 10\*3 = 30 Marks**

1. Explain arrays in PHP. CO1

OR

1. Briefly explain Uploading Files with PHP, Sending Email using PHP.CO1
2. Explain the various iteration statements with examples. CO2

OR

1. Describe the methods supported by str data type. CO2
2. Explain the concept of modules and packages. Give examples. CO3

OR

1. Explain the concept of functions and the various ways in which these can be created.CO3
2. Discuss about special methods and their significance. CO4

OR

1. With examples, discuss the concept of generators. CO4
2. **How can you embed two or more components into one? CO5**

**OR**

1. **Explain the lifecycle methods of React components in detail. CO5**



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**B.Tech**. **III** Year **II** Sem.–**Substitute**Examination, [Model paper ]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Subject**: MVC through Scripting Languages** | | |
|  |  |  | |  |
|  | Date: | Time: 2 Hours | | Max. Marks: 40 |
|  |  |  | **PART - A** |  |

**Answer All Questions 5\*2 = 10 Marks**

1. Discuss Control structures. CO1
2. Discuss various integer conversion functions. CO2
3. What is an iterable object? CO3
4. What is a metaclass? CO4
5. **How is React different from Angular. CO5**

**PART – B**

**Answer all three questions 10\*3 = 30 Marks**

1. Explain about different methodologies and authentication of PHP?

CO1

OR

1. What is the significance of a dictionary? Explain the various methods of a dictionary object. CO2
2. Explain the concept of scope. Provide complete examples for illustration.

CO2

OR

1. Write a Python program, to create a small web application with a single form.

CO3

1. **Explain the lifecycle methods of React components in detail. CO5**

**OR**

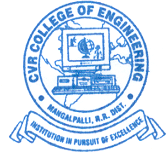
1. Briefly explain Uploading Files with PHP, Sending Email using PHP.

CO1

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# *UGC Autonomous Institution* - Affiliated to JNTUH

#### B.Tech. III Year II Sem. – I Mid Exam, 2019

Subject**: MVC Through Scripting Languages SET 1**

    (Common to: CSE)

Date:31/01/2019 Time: 2 hours Max. Marks: **40**

**Part – A 5x2 = 10 marks**

**Answer all questions**

1. How to create a function in PHP. Give an example . (CO 1)  
2. What is an array? Give examples. (CO 1)  
3. Explain the built-in functions input() and abs().  (CO 2)  
4. Define mutable and immutable properties of a Python object. (CO 2)  
5. What is exception handling mechanism? (CO 2)

**Part – B 3x10 = 30 marks**

**Answer all questions**

6. Explain in detail about strings and regular expressions in PHP. (CO 1)

OR

7. Explain about the functions with examples in PHP. (CO 1)

8. Explain the Python basic data types: int, float, complex with examples. ( CO 2)

OR

9. Explain the concept of dictionaries. Explain the core methods available with an example. (CO 2)

10. Explain the various ways of passing arguments into a Python function. Give examples. (CO 2)

OR

11. Write about the control structures available in Python. (CO 2)

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**B.Tech**. **III** Year **II** Sem. **II Mid Examinations**, March - *2019*

# Subject: MVC Through Scripting Languages

Branch: **CSE**

|  |  |  |
| --- | --- | --- |
| Date: 28-03-2019 (AN) | Time: 2 hours | Max. Marks: **40 M** |
|  |  |  |
|  | **PART – A**  Answer **ALL** questions | **5x2 = 10 M** |
| 1. What is recursion?. |  | (CO 3) |
| 2. What is a decorator? |  | (CO 4) |
| 3. Discuss polymorphism. |  | (CO 4) |
| 4. What is React? |  | (CO 5) |
| 5. Explain JSX. |  | (CO 5) |
|  | **PART – B**  Answer **ALL** questions | **3x10 = 30 M** |

1. Discuss the importance of modules and packages. (CO 3)

# (OR)

1. Write about command-line arguments. Give a detailed example on their usage. (CO 3)
2. Explain the concept of properties along with an example. (CO 4)

# (OR)

1. Explain the process of web application development using Django. (CO 4)
2. Describe the component architecture used in React. (CO 5)

# (OR)

1. Write in detail about motivation for using React. (CO 5)

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**B.Tech. III Year II Sem**. **Substitute** Examinations, April - *2019*

# Subject: MVC Through Scripting Languages

Branch : **CSE**

|  |  |  |
| --- | --- | --- |
| Date: 12.04.2019(AN) | Time: 2 hours | Max. Marks: **40 M** |
|  | **PART – A**  Answer **ALL** questions | **5x2 = 10 M** |

1. List the PHP data types. . (CO 1)
2. Write the rules for naming an identifier. (CO 2)
3. What is the syntax for while loop in Python? (CO 2)
4. What is inheritance? (CO 4)
5. What is virtual DOM? (CO 5)

**PART – B**

Answer **ALL** questions **3x10= 30 M**

1. Explain in detail about the arrays in PHP. Discuss with code examples. (CO 1)

# (OR)

1. Explain about the methods used to manipulate a list. Give examples. (CO 2)
2. Explain the various control structures used in Python with examples. (CO 4)

# (OR)

1. Explain the concept of Django framework and its MVT architecture. (CO 3)
2. What is the motivation for using React. (CO 5)

# (OR)

1. Write about the components available in React. (CO 5)

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# Code No.: B32057115 Date: 25.04.2019

**CVR COLLEGE OF ENGINEERING**

**R15**

***UGC Autonomous Institution -*** Affiliated to JNTUH

B Tech III Year II Sem. Main Exams April - 2019 (2016 Batch)

Subject: MVC Through Scripting Languages

**Branch: CSE**

**Time: 3 hours Max. Marks: 70**

**PART – A (10x2= 20 Marks)**

**(Answer ALL Questions)**

1. Create an array in PHP. (CO1)
2. How to extract a sub string from string in PHP? (CO1)
3. How to create a set in python? (CO2)
4. How to update tuples in python? Is it possible? (CO2)
5. What is looping in python? (CO3)
6. Define recursion in python. (CO3)
7. What is polymorphism? (CO4)
8. What is a web framework? (CO4)
9. What can React do? (CO5)
10. What is virtual Dom? (CO5)

# PART – B (5x10 = 50 Marks)

**(Answer ALL questions)**

1. Explain PHP Authentication and Methodologies. Write a python program to print first and last character of a string and slicing characters from 3 rd to 12th position and third position to second last position? (CO1)

# [OR]

1. Discuss function creation and function libraries of PHP with examples. (CO1)
2. Write about int, bool and complex data types in python. (CO2)

# [OR]

1. Explain various operations create, list index, negative index, slice and add on list with examples in python. (CO2)
2. Explain the exceptional handling mechanism with examples. (CO3)

# [OR]

1. Compare and contrast various file access methods used in python. (CO3)
2. Develop a basic web application in python with input controls name, age, year, branch, gender, comments area as fields and display the input data. (CO4)

# [OR]

1. Write about django framework and MVT pattern. (CO4)
2. Explain React key differentiators. (CO5)

# [OR]

1. Explain the components in React. (CO5)

# \*\*\*\*\*